

FINAL  
SOUTHEAST ROCKFORD  
SOURCE CONTROL OPERABLE UNIT  
WORK PLAN  
FEBRUARY 1996

Prepared For:

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PROTECTION AGENCY  
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From June to November of 1990, USEPA Emergency Response Section conducted a "removal action" which consisted of providing water main extensions and service connections to residences with private wells that equalled or exceeded 25 percent of the Removal Action Level for VOCs. Concurrent with this removal action, Camp Dresser & McKee Inc. (CDM), under the direction of HHPA, conducted the Operable Unit Remedial Investigation and Feasibility Study. This study consisted of sampling of 117 residential, commercial, and industrial wells for VOCs and metals, identifying areas where contaminant concentrations exceeded MCLs for VOCs and evaluating alternative water supply options for private well owners. As a result of this study, additional water main extensions and service connections were installed and a granular activated carbon treatment system was installed at UW35 so that it could be brought back into service to help ease the increased water demand.

From June to October of 1991, CDM and its subcontractors, under the direction of IEPA, conducted the Phase I Remedial Investigation. In Phase I the groundwater study area was expanded from the original NPL site boundaries to an area of approximately 5 square miles. The Phase I area was bounded on the north by Harrison Avenue, on the south by Sandy Hollow Road, Wendy Lane to the east, and the Rock River to the west (see Figure 1-1). Phase I activities included a 225-point soil gas survey, installation of 33 monitoring wells at 11 locations, hydraulic conductivity testing, groundwater sampling and analysis of the 33 Phase I wells, 19 Illinois State Water Survey (ISWS) wells and 16 industrial wells, and subsurface soil sampling during drilling. The Phase I study was designed to define the nature and distribution of groundwater contamination, define local geology and hydrogeology, and to gain preliminary information on potential contaminant source areas.

Phase II field activities conducted from January 1993 to January 1994, included a soil gas survey of twelve potential source areas, soil boring installation and sampling, monitoring well installation and sampling, residential well sampling, residential air sampling, and Source Area 7 test pit soil and ambient air sampling. During the Phase II field activities, 212 soil gas points were sampled, 44 monitoring wells were installed, 55 subsurface soil borings were drilled, 116 subsurface and 10 surface soil samples were collected, 165 groundwater samples were collected from monitoring wells, 24 groundwater samples were collected from residential wells, 20 residential air samples were collected, and two test pits were excavated in the study area. The Phase II study was designed to further define the extent of groundwater contamination within the Phase I groundwater study area, provide screening information on existing and newly identified source areas, and evaluate contaminant fate and transport.

The results of the Phase I and II groundwater investigations indicated several contaminant source areas that contribute to the groundwater contaminant plumes. The source areas of interest in the Source Control Operable Unit (SCOU) are shown in Figure 1-1. This operable unit is designed to provide the data necessary to support the evaluation of feasible remedial alternatives for source control. As a provision of the groundwater remedy, source control is proposed in order to meet ARARs within the time frames outlined in the groundwater Record of Decision (ROD). Residential hook-ups were also proposed in the groundwater ROD.

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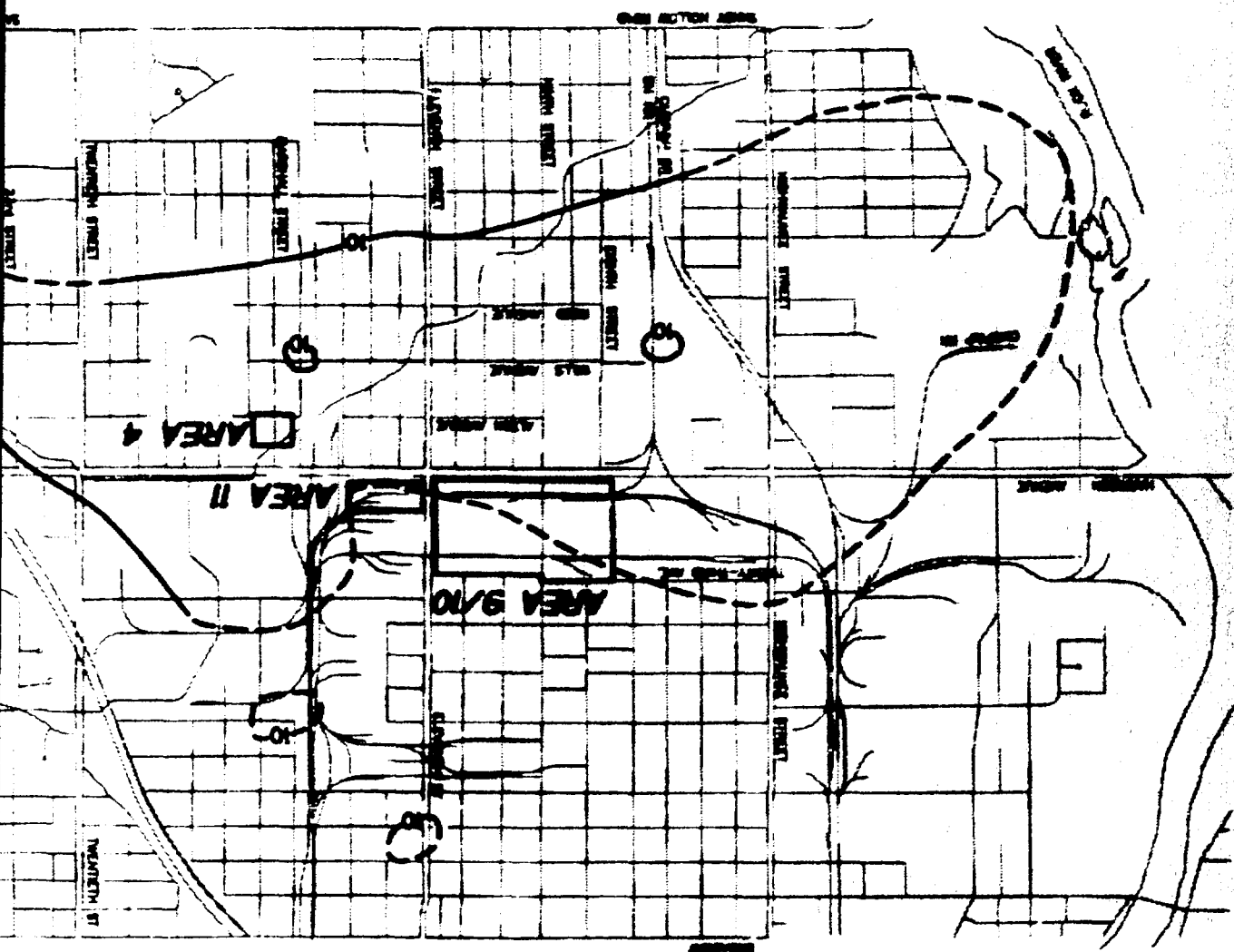
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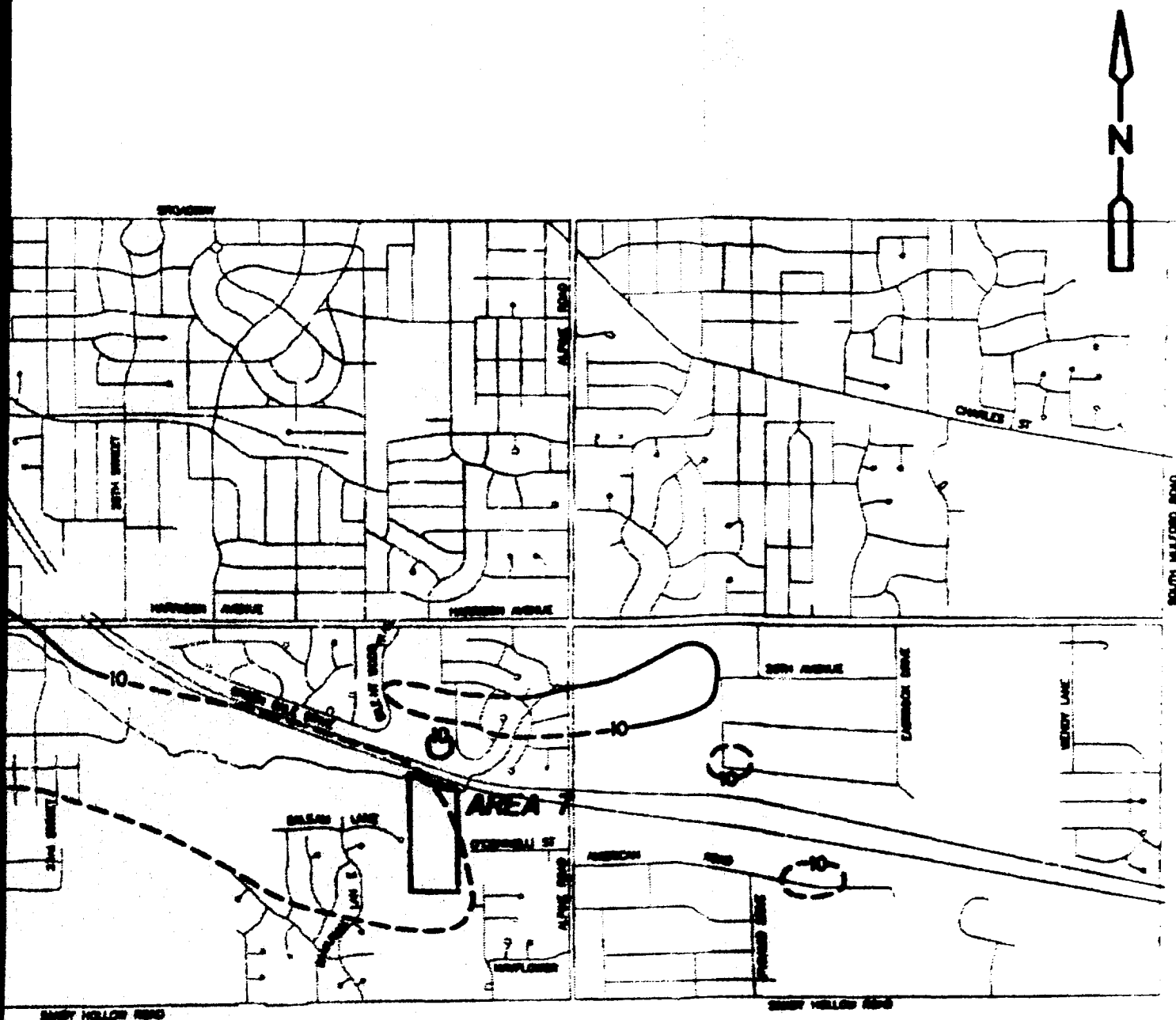
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CDM

CONSTRUCTION ENGINEERS, ARCHITECTS,  
PLANNERS & ENVIRONMENTAL CONSULTANTS





# LEGEND:

AREA 4  SOURCE AREAS TO BE STUDIED

— 10 — TOTAL HALOGENATED VOC CONTOUR (ug/L),  
DASHED WHERE INFERRED

SCALE:  
500 0 1000 Feet

SOUTHEAST ROCKFORD  
SOURCE CONTROL OPERABLE UNIT  
GROUNDWATER CONTAMINATION  
STUDY AREA

Figure No. I-1



This work plan provides a description of the study area in Section 2, the scope of work for the SCOU activities in Section 3, project staffing in Section 4, and project schedule and budget in Section 5.

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## 2.0 SOURCE AREA DESCRIPTION

The area surrounding the source areas is predominantly urban and suburban residential, including scattered industrial, agricultural, retail and commercial operations. A small industrial park is located in the vicinity of Laude Drive and 22nd Street. Other industrial areas are located along Harrison Avenue from Alpine Road to the Rock River. Agricultural areas are present near Area 7.

The area surrounding the source areas is predominantly flat-lying and slopes gently westward towards the Rock River, but locally contains low-relief hilly areas. Maximum topographic relief from Area 7 to the Rock River is approximately 160 feet.

The stratigraphy beneath the source areas consists of bedrock with locally significant subsurface relief that is overlain by unconsolidated glacial sediments of variable thickness. The uppermost bedrock unit is generally dolomite, which forms a subsurface valley greater than 200 feet deep in the western part of the study area. Glacial sediments are thickest within this bedrock valley and thinnest on the valley flanks. The glacial sediments and the bedrock constitute two hydraulically-connected aquifers; no areally extensive aquitards have been identified between the unconsolidated deposits and the dolomite.

Four source areas will be investigated during the Source Control Operable Unit (SCOU) activities. Area 7 is primarily an undeveloped area whereas Areas 4, 9/10, and 11 are primarily industrial areas. CDM conducted background review for some of the industries located in Areas 4, 10 and 11. At this time little is known regarding activities in Area 9. The existing information on Areas 4, 7, 9/10, and 11 is summarized below.

### Area 4

Swebco Manufacturing, Inc. at 2600 Marshall Street is a precision contract machining shop producing metal parts. This is the only industry located in Area 4. The present management acquired ownership in 1985 under the name of Pro-Tool Manufacturing Co. then changed to

Swebco Manufacturing, Inc. in 1990. The company did use a solvent, although its contents are not specified. However, naphthenic distillate petroleum, hydrocarbons, and mineral spirits are all components of compounds used at the facility. There are three underground tanks present, in unknown condition. They are currently thought to be empty, but their past contents were fuel oil and waste oil. The area around the tanks was sampled once, indicating benzene, toluene, ethylbenzene and xylene (BETX) contamination. When asked about past releases, Swebco described two spills of water-soluble coolant.

The Area 4 contaminant plume consists primarily of TCA and is relatively small compared with the other source area plumes. The high VOC concentrations detected exist near the top of the saturated zone. The maximum thickness of the suspected NAPL is at least eight feet. The VOC contaminant concentration ranges for Area 4 are provided in Table 2-1.

#### Area 7

Area 7 is primarily an undeveloped area that has a children's playground, tennis courts and basketball court. Some of the land has been planted with soy beans in the past. Previous work in Area 7 has identified contamination in the central, south and eastern portions of the area. Additional work will be conducted in the north, northwest, and southwest parts of the area. Historical aerial photographs indicate that wastes were likely disposed in Area 7 from 1958 to 1970. Recent information indicates that hazardous waste disposal probably occurred from the late 1950s to early 1960s.

The contamination plume in Area 7 consists of chlorinated VOCs (TCA, PCE, TCE, and 1,2-DCE) and aromatics (xylene, ethylbenzene and toluene). The range of VOC contaminant concentrations detected in Area 7 is provided on Table 2-1. The plume begins in Area 7 and gradually migrates from the shallow portion of the aquifer system to maximum depths of about 200 feet between MW103 and MW101.

Table 2-1  
Range of VOC Contaminant Concentrations  
In Areas 4, 7, 9/10 and 11

VOC Contaminant Concentration Ranges - Area 4		
Contaminant	Concentration Range in Soils (ppb)	Concentration in Groundwater (ppb)
Benzene	BDL-2J	BDL
1, 1-Dichloroethane	BDL	26J
1, 1-Dichloroethene	BDL	10J
1, 2-Dichloroethene (total)	BDL	25J
Chlorobenzene	BDL-2J	BDL
Tetrachloroethene	BDL-1J	BDL
Toluene	BDL-41	43J
1, 1, 1-Trichloroethane	BDL-360,000	1,000
Trichloroethene	BDL	28J
Xylene	BDL	28J

VOC Contaminant Concentration Ranges - Area 7		
Contaminant	Concentration Range in Soils (ppb)	Concentration Ranges in Groundwater (ppb)
1, 1-Dichloroethane	BDL-240J	BDL-220J
1, 1-Dichloroethene	BDL-11J	BDL-180J
Chloroform	BDL-2J	BDL-23
1, 2-Dichloroethane	BDL-180	BDL-13
1, 2-Dichloroethene (total)	BDL-49,000	BDL-5,900
Ethylbenzene	BDL-31,000	BDL-210
Tetrachloroethene	BDL-260,000	BDL-1,200
Toluene	BDL-23,000J	BDL-170
1, 1, 1-Trichloroethane	BDL-380,000	BDL-8,000
1, 1, 2-Trichloroethane	BDL-7J	BDL
Trichloroethene	BDL-130,000	BDL-650
Vinyl Chloride	BDL	BDL-75
Xylene	BDL-210,000	BDL-1,100

Contaminants included in these tables include chlorinated VOCs and the more common non-chlorinated VOCs. Semivolatiles have been found at both source areas, but were not found to have a significant impact on groundwater quality. These contaminants include low concentrations of naphthalene, methylnaphthalene, phthalates, polyaromatic hydrocarbons, PCBs and pesticides.

Notes: BDL - Below Detection Limits  
J - Estimated Values

**Table 2-1 (Continued)**  
**Range of VOC Contaminant Concentrations**  
**In Areas 4, 7, 9/10 and 11**

VOC Contaminant Concentrations - Area 9/10		
Contaminant	Concentration Range in Soils (ppb)	Concentration Ranges in Groundwater (ppb)
Chloroethane	N/A	BDL-500
1, 1-Dichloroethane	N/A	BDL-2,100
1, 1-Dichloroethene	N/A	BDL-410
1, 2-Dichloroethane	N/A	BDL-6J
1, 2-Dichloroethene (total)	N/A	BDL-210
Ethylbenzene	N/A	BDL-19
Tetrachloroethene	N/A	BDL-50J
Toluene	N/A	BDL-420
1, 1, 1-Trichloroethane	N/A	BDL-1,400
1, 1, 2-Trichloroethane	N/A	BDL-60J
Trichloroethene	N/A	BDL-140
Vinyl Chloride	N/A	BDL-14
Xylene	N/A	BDL-77

VOC Contaminant Concentrations - Near Area 11		
Contaminant	Concentration Range in Soils (ppb)	Concentration Ranges in Groundwater (ppb)
Benzene	BDL-1,500	BDL-23J
Ethylbenzene	BDL-500,000	BDL-2,000J
Tetrachloroethene	BDL-46	BDL
1, 1, 1-Trichloroethane	BDL-3J	BDL-860
Trichloroethene	BDL	BDL-170J
Toluene	BDL-1,400,000	BDL-310,000
Xylene	BDL-2,300,000	BDL-9,500

Since soil samples were not previously collected in Area 9/10, contaminant ranges in soils were not available. Source data for Area 11 is incomplete. Area 9/10 and Area 11 will be fully characterized in operable unit 3 (source control).

Notes:           BDL - Below Detection Limits  
                       J - Estimated Values  
                       N/A - Not Available

#### Area 9/10

Area 9/10 contains numerous industries, several of which are no longer active. Sundstrand's Plant 1, located at 2421 11th Street, in an active facility that manufactures aircraft parts for constant speed drives. Nylint leases a warehouse located south of Sundstrand for the storage of steel and plastic toys. Stephen Paoli Manufacturing, located at Eleventh and Harrison currently manufactures food processing equipment. The Rockford Products and Fastners facility located on 9th Street west of Nylint is active.

To the west of Paoli, along Harrison Avenue are several inactive facilities including the former Rohrbacher Manufacturing, Libby Oil and Chemical and Nu-Clo. An additional inactive facility is located at 2401 11th Street, Mid-States Industrial, which manufactured various tools, pipes and valves.

There are several parking lots within the 9/10 area and a few commercial establishments. There is a new warehouse facility for J.L. Clark located along Twenty-Third Avenue that is nearing completion. To the north of Twenty-Third Avenue is a residential area.

The Area 9/10 contaminant plume consists mostly of chlorinated VOCs; the aromatics ethylbenzene, toluene and xylene also present. Detected VOC contaminant concentration ranges in Area 9/10 are listed on Table 2-1.

#### Area 11

Rockford Coatings Corporation, located in Area 11, discontinued operations at 1620 Harrison Avenue in 1983. The company manufactured different paint products, including air-dry and baking enamels, lacquers, and water-based paints. Use of chlorinated solvents at the facility is unknown. Waste from the facility was handled by Acme Solvents in the early 1980s.

Rockwell International Graphics at 2524 11th Street manufactured gears and rollers for newspaper presses until approximately 1991. The facility used 1,1,1-trichloroethane for cleaning rollers until 1983. The property is now owned by P.H. Partners Co., which leases it to Rohr

Manufacturing. According to P.H. Partners Co., the property was leased to Sundstrand during the Korean War. P.H. Partners initially denied access for Phase II investigative work on their property during the groundwater KI/FS. A railroad right-of-way is located adjacent to the property, to the south. This land is owned by Aetna Ply wood. There was an environmental assessment performed on the property (*"Environmental Assessment, Former Railroad Right-of-Way,"* by Dames & Moore, 1990), which indicated some areas of concern. The work and sampling results outlined below are from this assessment. One such area was a section of stained soil adjacent to a concrete slab on the P.H. Partners property. It appeared that a Rockwell Graphics dumpster had leaked cutting oils onto the ground surface. A grab sample of soil indicated 15,900 ppm total petroleum hydrocarbons (TPH). TCE was detected in this area at 21.3 ppb. A monitoring well (MW-3) placed in this area indicated 2.5 ppb PCE, 36.6 ppb TCA, and 7.4 ppb TCE. Also, a pit to the north of the former Rockwell Graphics property contained standing water with an oily sheen; a soil sample adjacent to this pit contained 460 ppm TPH. Other areas of concern in the right-of-way south of the former Rockwell Graphics property are a bunker, reportedly used by Rockford Varnish Company (formerly at 11th Street and Harrison Avenue), that was seeping a tar-like substance. A monitoring well (MW-2) in this area indicated 1,150 ppb TCA and 302 ppb TCE. A second area was the portion of the right-of-way near the above-ground tanks, located just south of the right-of-way. A monitoring well (MW-1) in the right-of-way and near these tanks did not indicate contamination from chlorinated solvents, but did show a concentration of toluene at 604 ppm.

The Area 11 contaminant plume consists primarily of aromatics (xylene, toluene and ethylbenzene), though elevated concentrations (up to 2,900 ppb) of several chlorinated VOCs are also present. There appears to be two separate NAPLs in Area 11, the larger NAPL has a thickness of generally 5 to 10 feet and locally as great as 25 feet. VOC contaminant ranges in Area 11 are listed in Table 2-1.

### 3.0 SCOPE OF WORK

#### 3.1 OBJECTIVES OF SOURCE CONTROL OPERABLE UNIT

The Phase I and II Remedial Investigations, both conducted by Camp Dresser & McKee Inc. (CDM) under the direction of the Illinois Environmental Protection Agency (IEPA), have identified several source areas of volatile organic compound (VOC) contamination in southeast Rockford, Illinois. The source areas of interest are Areas 4, 7, 9/10, and 11. These areas either contain or are likely to contain significant concentrations of VOCs that contribute to groundwater contaminant plumes delineated during the Phase I and II investigations. The field investigation is designed to delineate the horizontal and vertical extent of contaminant sources, including any NAPLs that may be encountered. The primary objective of the Southeast Rockford Source Control Operable Unit (SCOU) study is to provide detailed information to support source remediation. Source remediation is included as a component to the selected groundwater response action outlined in the groundwater ROD. The groundwater study is referred to as Operable Unit 2 in the ROD document. In addition, some long term objectives of the SCOU include establishing soil cleanup objectives using chemical and physical data, and performing a focused feasibility study to identify and evaluate options by which final remedial action objectives can be met. These long range tasks are not included in this workplan. The preliminary tasks for meeting the SCOU data gathering objectives are described in the sections below.

#### 3.2 QUALITY ASSURANCE PROJECT PLAN ADDENDUM

An addendum to the Quality Assurance Project Plan (QAPP) will be prepared to document all aspects of quality control and quality assurance for the project. Sampling quality control measures (including documentation, sampling matrix, frequency, and standard materials) will be specifically identified. Laboratory quality control for all aspects of analyses will be included as well as equipment maintenance requirements. Data quality objectives will be specified for accuracy, precision, completeness, and representativeness for each analytical parameter. Project quality assurance and field and system audits will be discussed as well as data validation, documentation, and reporting.



The Sampling and Analysis Plan (SAP) will be an appendix to the QAPP addendum and will include a detailed description of all sampling and analyses to be performed during the SCOU. Included will be procedures for field collection of samples, shipment of samples, documentation, quality control, and chain-of-custody. Sampling location rationale will be described and figures and descriptions of locations will be documented in the plan. The SAP will be designed to provide stand alone guidance for the field personnel conducting the field activities. The plans will be submitted to IEPA and USEPA for review and approval.

### 3.3 HEALTH AND SAFETY PLAN

The health and safety plan (HASP) will describe health and safety procedures for SCOU activities. This HASP will describe applicable provisions for the most recent revisions of the following regulations and guidelines:

- OSHA Safety and Health Standards 29 CFR 1910 (General Industry), US Department of Labor, Occupational Safety and Health Administration, especially OSHA 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response;
- OSHA Safety and Health Standards 29 CFR 1926 (Construction Industry), US Department of Labor, Occupational Safety and Health Administration;
- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, US Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health; and
- Standard Operating Safety Guides, US Environmental Protection Agency (EPA), Office of Emergency and Remedial Response PB92-983414 (1992).

This plan will be submitted to IEPA for review.

### 3.4 SUBCONTRACTOR PROCUREMENT

Subcontractors will be used for the drilling, soil sampling, and soil gas surveying tasks as described in this work plan. Subcontractors will be selected based upon their qualification to perform the work required, the availability of adequate equipment, cost, ability to meet health and safety requirements, ability to meet the project schedule, and other appropriate criteria which are pertinent to selection of a subcontractor.

### 3.5 SITE MOBILIZATION

Prior to the start of field activities, CDM will mobilize to the site. This activity includes setting up site trailer and associated utilities, procuring the necessary equipment and supplies, and coordinating with the subcontractors. In the project budget, the cost for most of the field equipment, trailer, utilities and supplies has been included under the mobilization task for ease of review. The costs for personal protective gear and specialized equipment has been included under the specific tasks where they will be used. The project budget for the field activities is based on the assumption that field work will take 2 months and IEPA will supply organic vapor meters, calibration equipment and all sample bottles.

### 3.6 SOURCE AREA INVESTIGATION

An investigation of Source Areas 4, 7, 9/10, and 11 (see Figure 2-1) will be conducted during the SCOU to further define the extent of contamination in the vadose zone and to evaluate whether dense non-aqueous phase liquid (DNAPL) is present. The field investigation activities to be performed are described in the following subsections. Additional data may be needed to develop site specific remediation goals. These data may include parameters such as hydraulic gradient, hydraulic conductivity, estimate of infiltration, contaminant source length, and mixing zone depth. This additional data may also be used for input to future treatability studies.

### 3.6.1 SOIL GAS SURVEY

A soil gas survey of VOCs will be conducted in Areas 4, 7, 9/10, and 11 prior to soil sampling. These areas were identified from Phase I and II data, aerial photographs, site visits, and information regarding industrial activities. The rationale for each SCOU soil gas survey area is given in Table 3-1 and the locations of the soil gas areas are shown in Figure 3-1.

The proposed soil gas sample locations are shown in Figures 3-2 through 3-5. A total of 298 (including contingency sampling locations) soil gas sample locations have been identified.

Analytes of interest in each area include:

1,1,1-TCA	PCE
1,1-DCA	TCE
	1,2-DCE
	Vinyl Chloride

In addition, in Areas 9/10 and 11 the following compounds will also be quantified:

Benzene
Ethylbenzene
Toluene
Xylenes

Soil gas concentrations will be used to define contaminated areas in or near the sources. Soil gas points will be spaced 50 to 100 feet apart in a rectilinear grid pattern where possible. Deviations from this pattern may be necessary to avoid underground utilities or above ground obstacles. A Geoprobe unit will be used to collect soil gas samples. The depth of sample collection will vary with the depth to groundwater. It is anticipated that soil gas samples will be collected at depths between 5 and 30 feet. Soil gas samples will be analyzed shortly after collection using a gas chromatograph located at the site. Results of the soil gas survey will be used to locate Geoprobe soil samples and deep soil borings.

TABLE 3-1

**RATIONALE FOR SOIL GAS AND  
SOIL BORING WORK FOR SOURCE CONTROL OPERABLE UNIT  
SOUTHEAST ROCKFORD**

Location	Soil Gas Survey Area	Proposed Soil Gas Survey Points	Proposed Soil Borings (Approximate )	Rationale
Adjacent to Marshall Street and Alton Avenue	4	38*	2	Close off the northeast, east, and south po the area.
East end of Balsam Lane	7	27**	2	Close off the northern boundary and sout corner of the area.
Adjacent to 9th Street between Twenty-third and Harrison Avenues	9/10	176***	6	Augment existing soil gas data.
Northeast of 11th Street and Harrison Avenue	11	57****	3	Augment existing soil gas data.

\* Includes 6 contingency points

\*\* Includes 4 contingency points

\*\*\* Includes 30 contingency points

\*\*\*\* Includes 10 contingency points

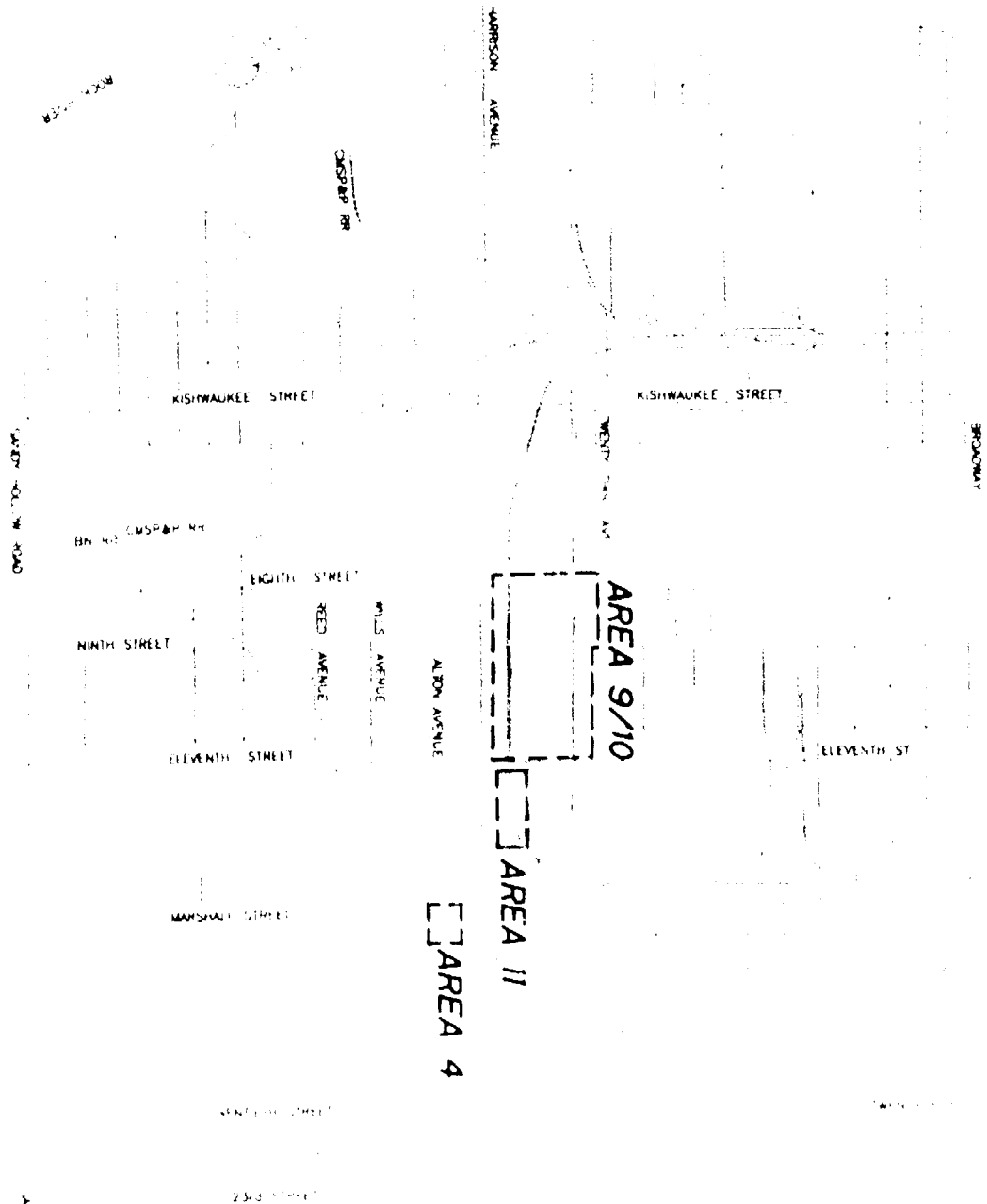
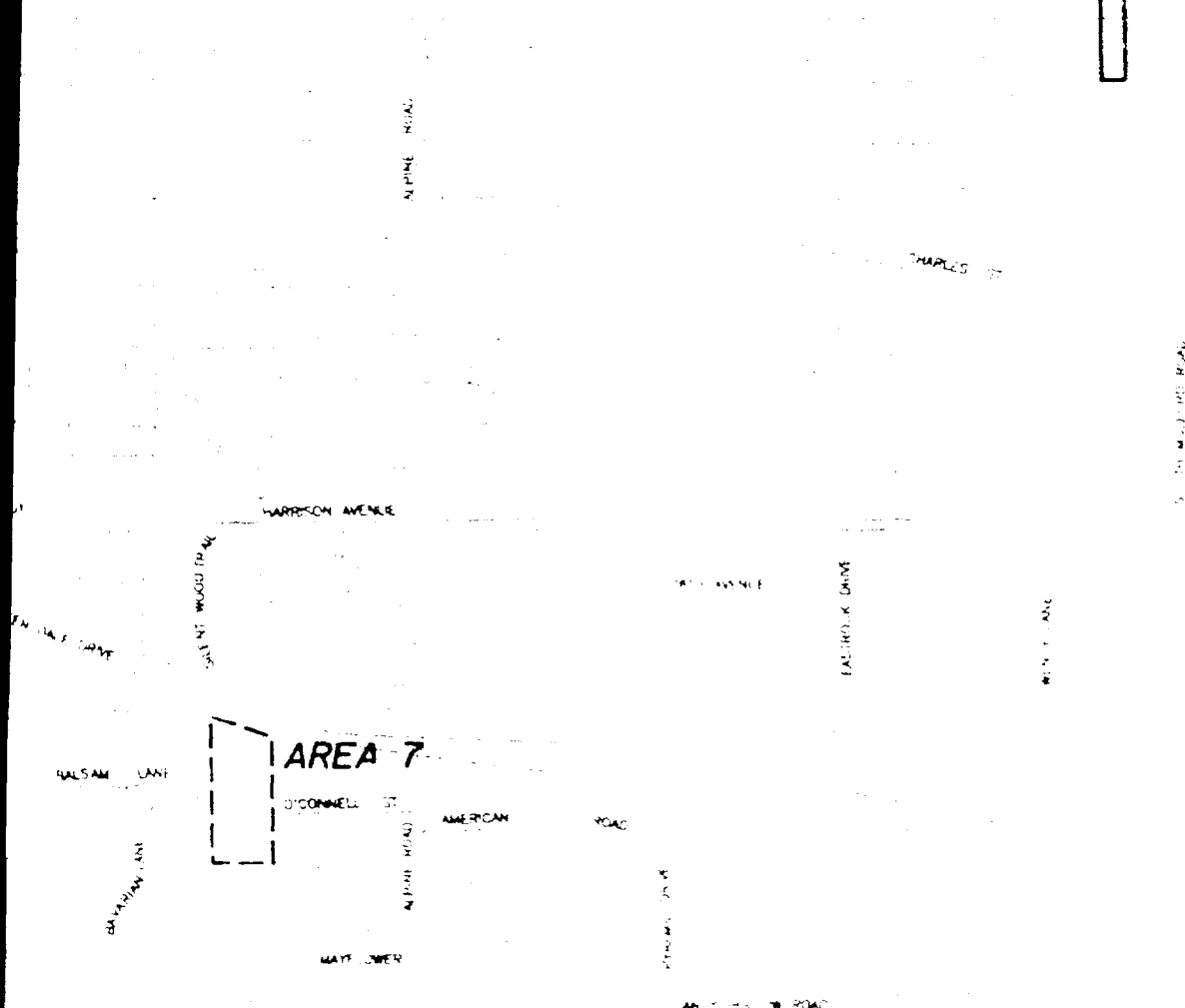




Figure 3-1



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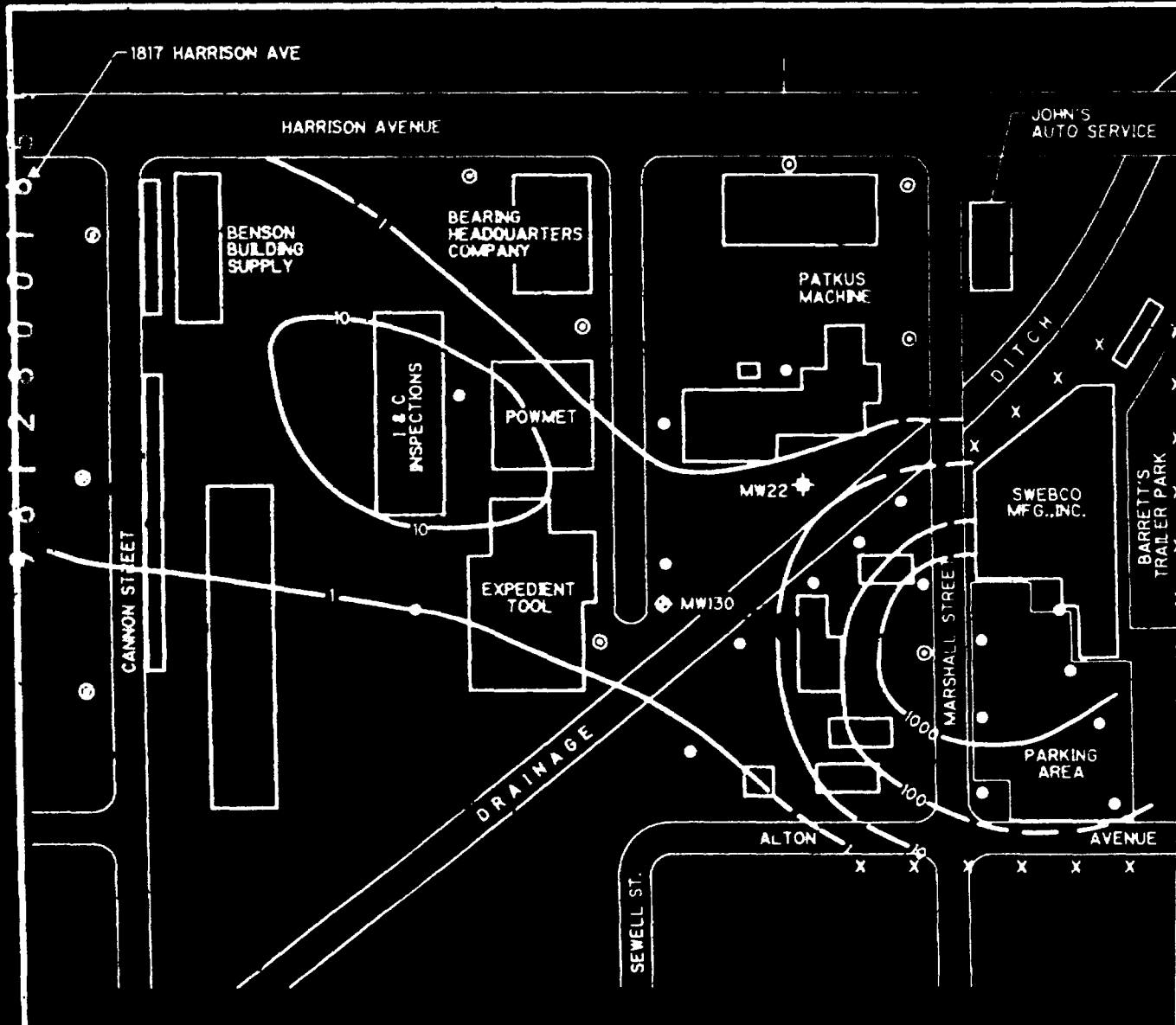
AREA 4  SOURCE AREA

SCALE:  
  
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SOUTHEAST ROCKFORD  
SOURCE CONTROL OPERABLE UNIT

SOURCE AREA LOCATIONS

Figure No. 3-1



SOUTHEAST ROCKFORD SOURCE CONTROL OPERABLE UNIT

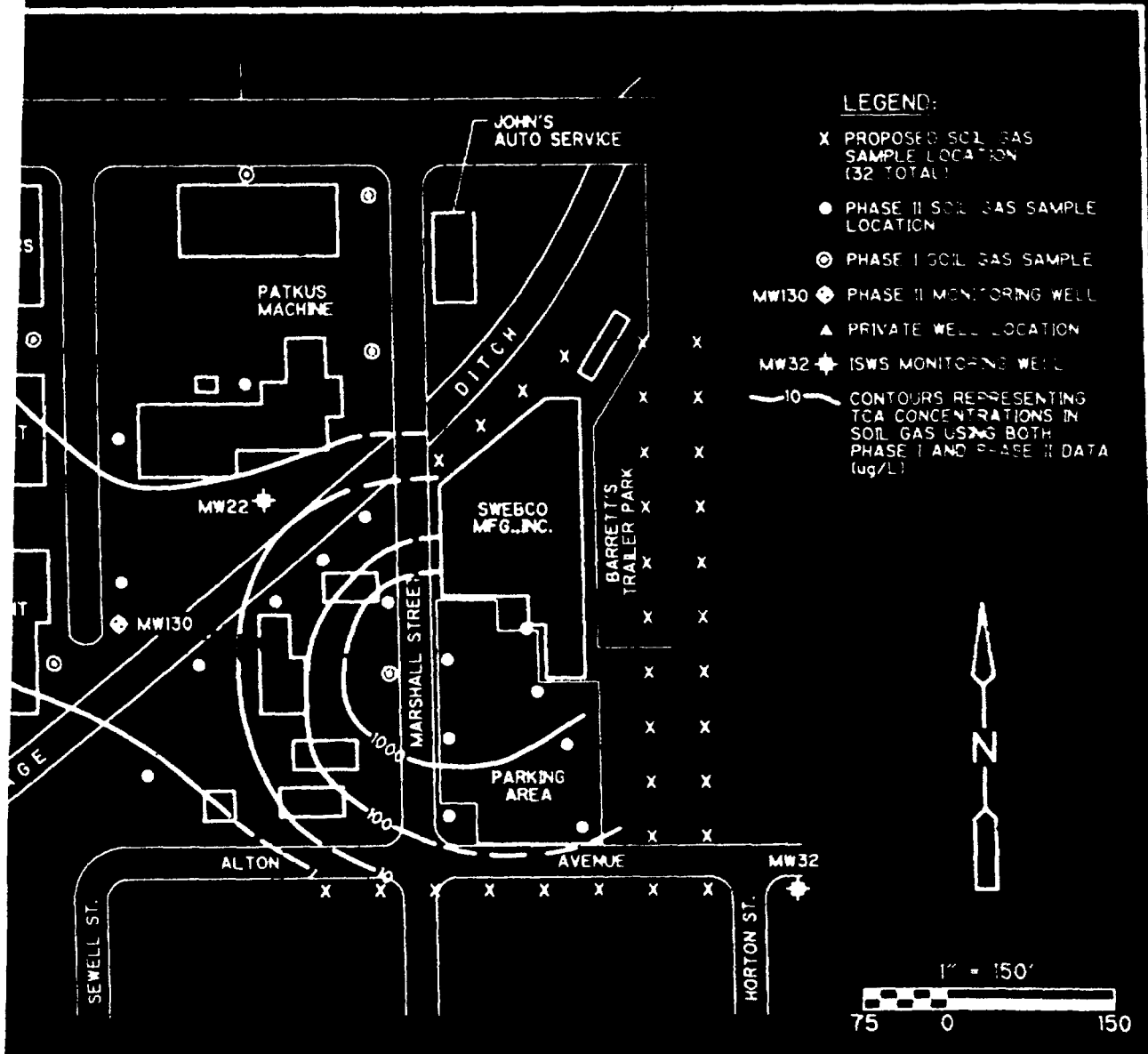
AREA 4 SOIL GAS SAMPLE LOCATIONS

**CDM**environmental engineers, scientists,  
planners, & management consultants

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R. SELIGA. NMW-CHI



SOUTHEAST ROCKFORD SOURCE CONTROL OPERABLE UNIT

## AREA 4 SOIL GAS SAMPLE LOCATIONS

Figure No. 3-2



M. KUZEL, INMW-CHI

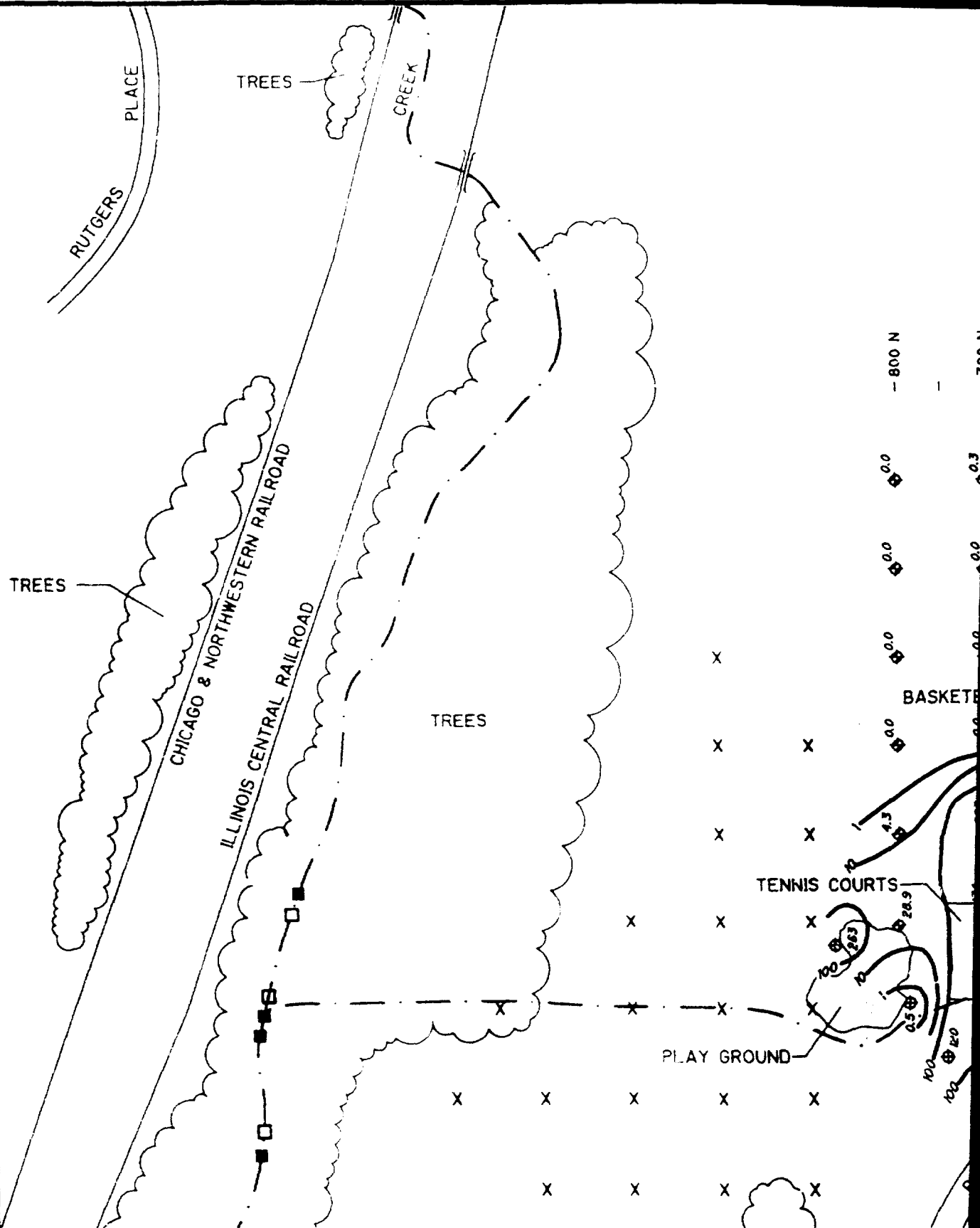
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**CDM**

environmental engineers, scientists,  
planners, & management consultants



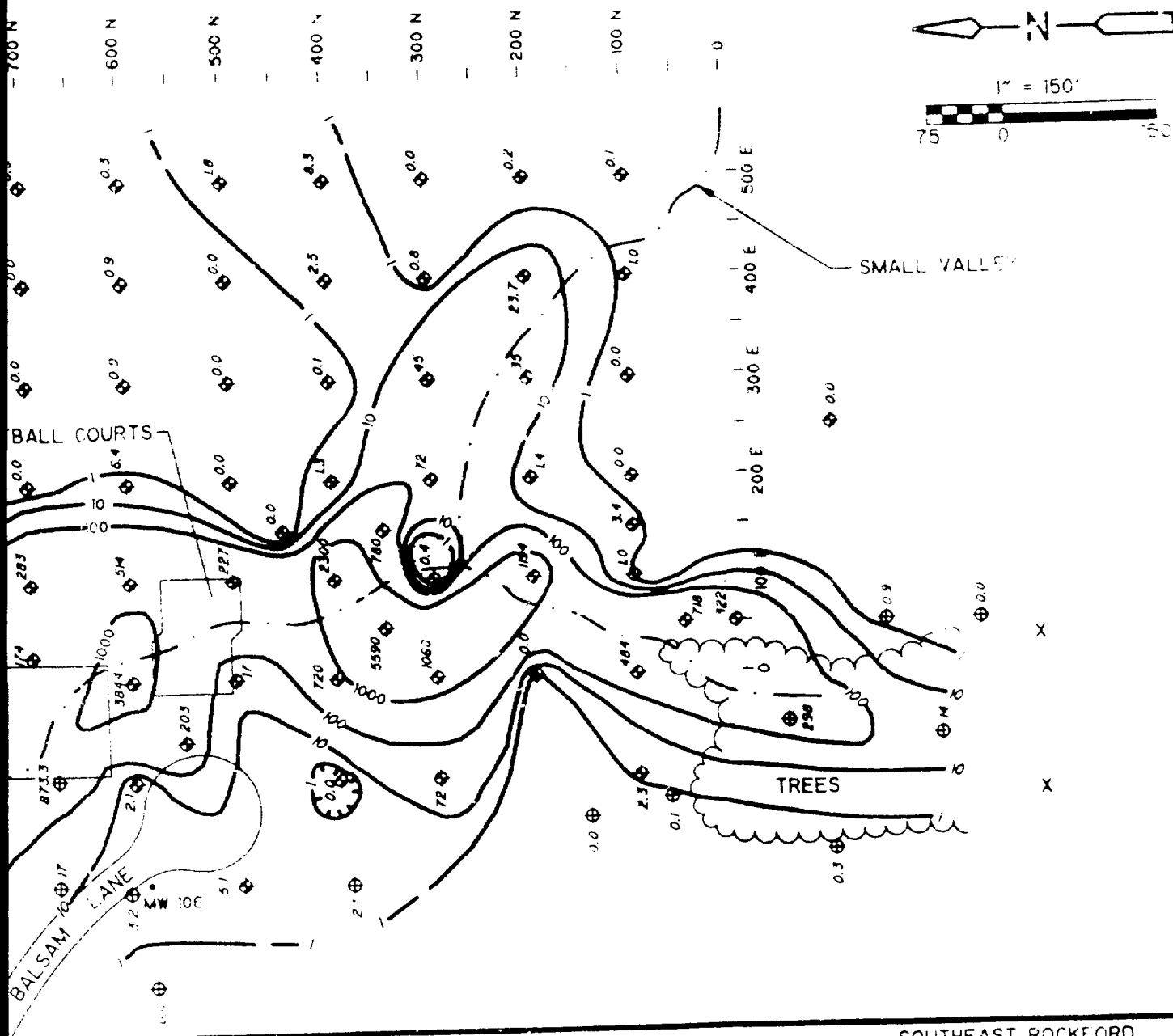
O'CONNELL STREET

# LEGEND:

- X PROPOSED SOIL GAS SAMPLE LOCATION (TOTAL 23)
- PROPOSED CREEK SEDIMENT SAMPLE LOCATION
- PROPOSED SURFACE WATER SAMPLE LOCATION
- ⊕ SOIL GAS SAMPLE LOCATION, PHASE I (MAY 1992)
- ⊕ SOIL GAS SAMPLE LOCATION, PHASE II (FEB 1993)
- 2.3 SUM OF TCA, TCE AND PCE CONCENTRATIONS (ug/L) IN SOIL GAS
- - - ISOCONCENTRATION CONTOUR

## NOTE:

CONTOURS ARE BASED ON BOTH PHASE I AND PHASE II RESULTS AND ARE DASHED WHERE INFERRED.



SOUTHEAST ROCKFORD  
SOURCE CONTROL OPERABLE UNIT  
AREA 7 SOIL GAS AND CREEK  
SAMPLE LOCATIONS

M. KUZEL, NAW-CHI

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6

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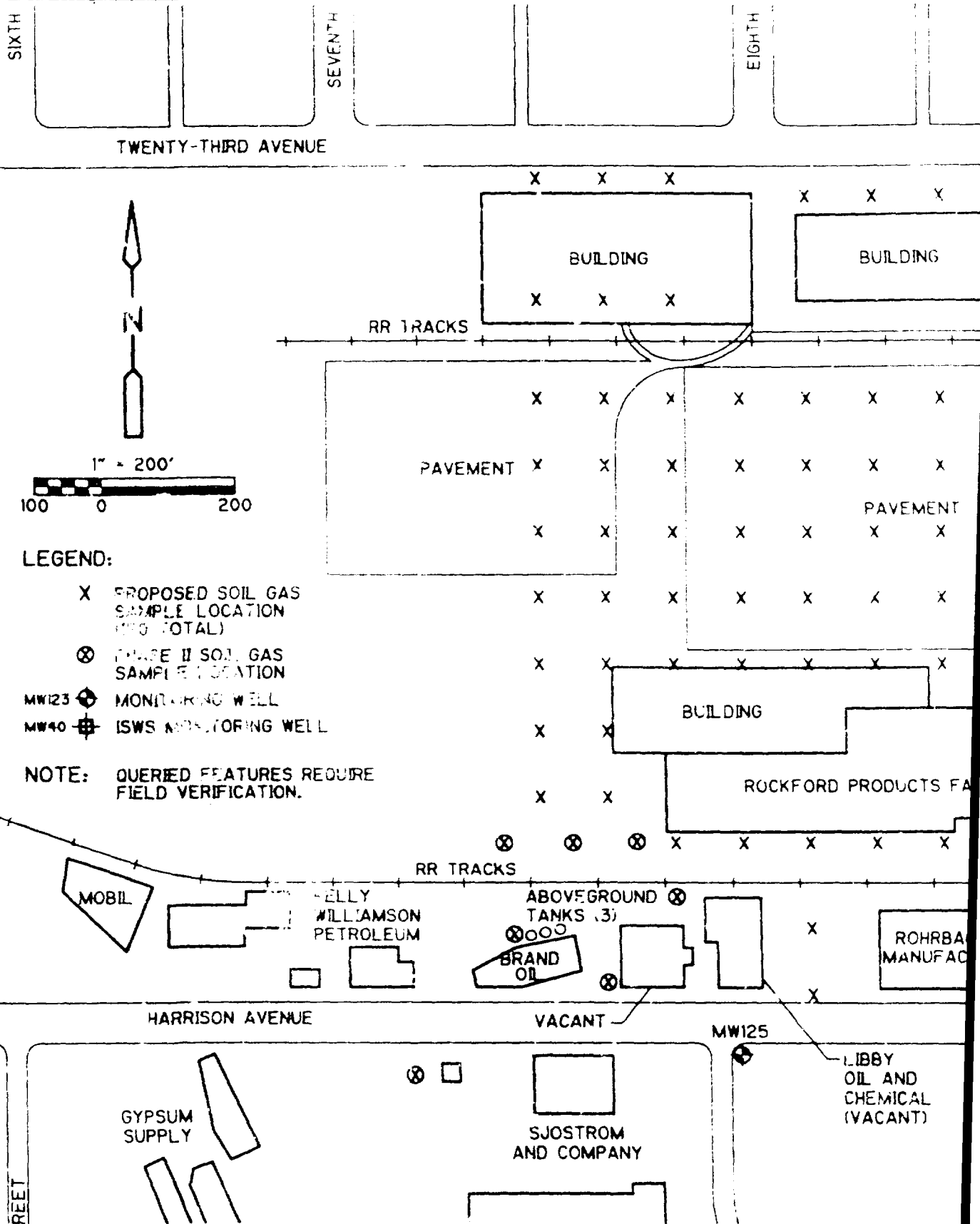
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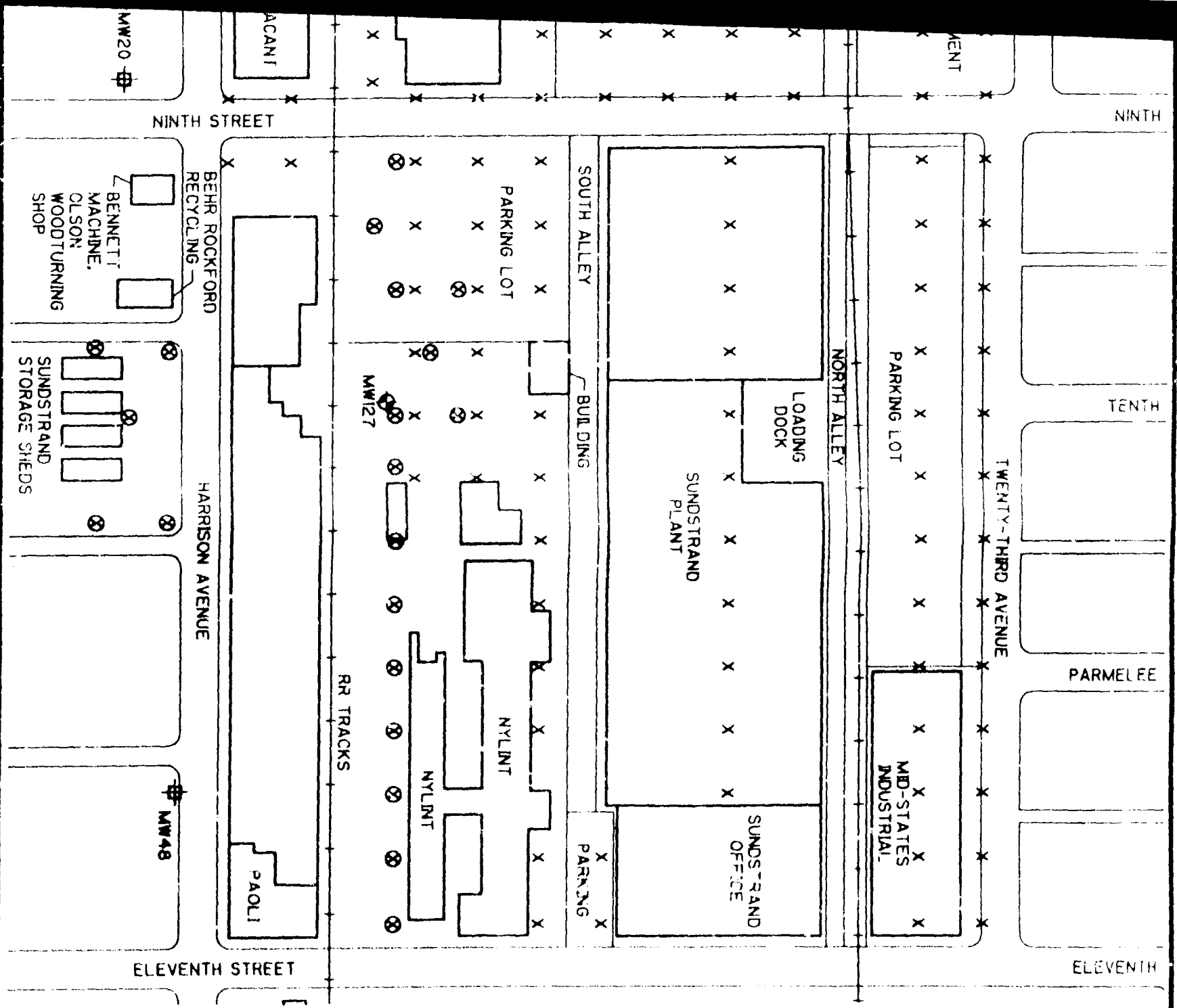
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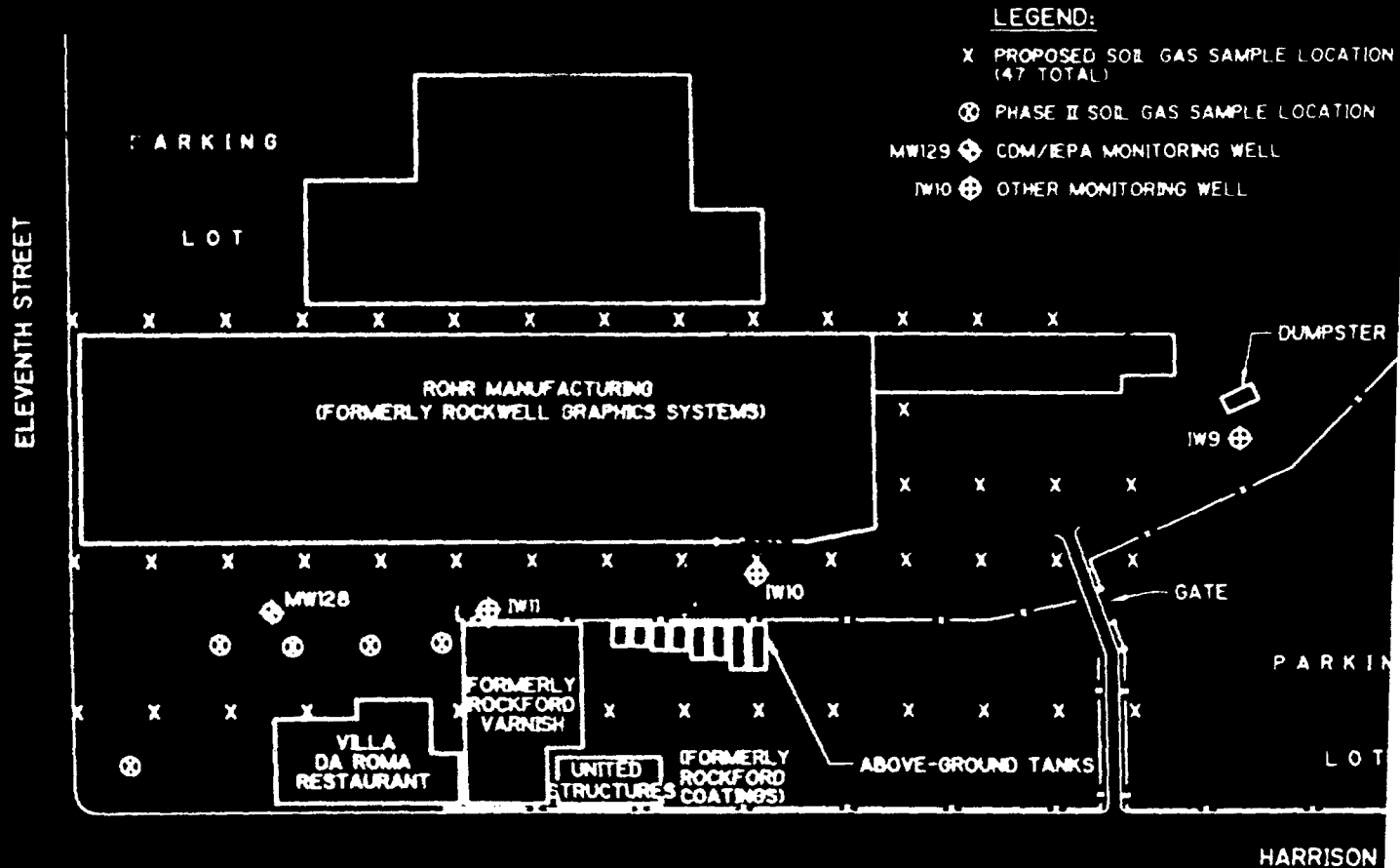


**CDM**

environmental engineers, scientists,  
planners, & management consultants



SOUTHEAST ROCKFORD SOURCE CONTROL  
 AREA 9/10 SOIL GAS  
 SAMPLE LOCATIONS



SOUTHEAST ROCKFORD SOURCE CONTROL OPERABLE UNIT

## AREA 11 SOIL GAS SAMPLE LOCATIONS

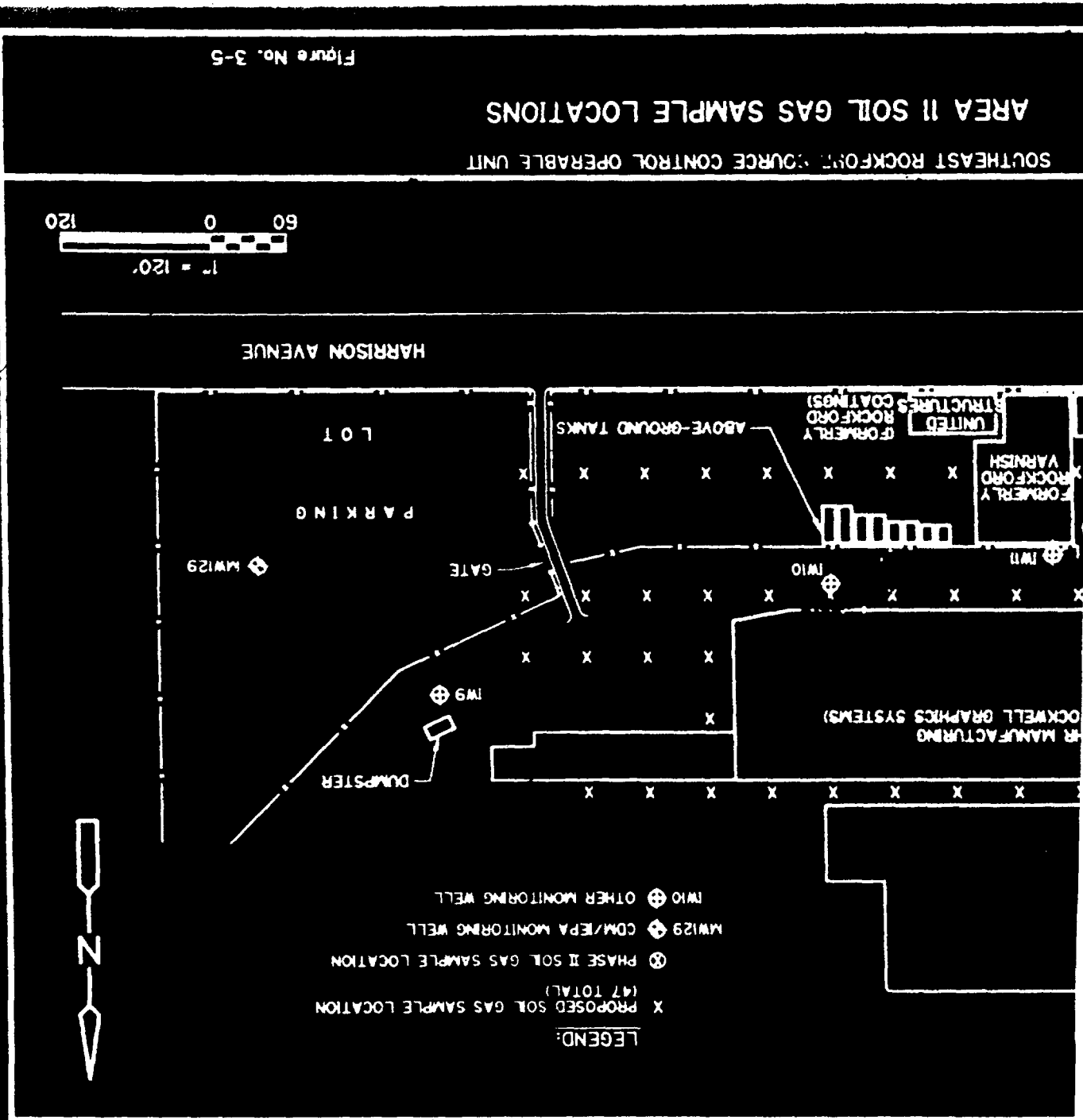
**CDM**environmental engineers, scientists,  
planners, & management consultants

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R. SELIGA, MMW-CHI



It is important to note that property access, particularly in Area 9/10, is critical to the success of the SCOU field investigation. CDM assumes that the agencies will obtain access for all properties shown in Figures 3-2 through 3-5 in a timely manner. Lack of access will hamper the field effort and likely result in an incomplete characterization of the investigated areas.

#### *Area 4*

The SCOU soil gas sample locations for Area 4 were chosen to close off the areas to the north, east, and south of the Swebco facility (Figure 3-2). A contingency of six locations was used for cost development.

#### *Area 7*

The SCOU soil gas sample locations for Area 7 (Figure 3-3) were chosen to close off the areas to the north and southwest of the area investigated during Phases I and II of the Remedial Investigation. Accordingly, the previous soil gas sampling grid was extended to achieve this objective. A contingency of four locations was used for cost development.

#### *Area 9/10*

The SCOU soil gas sample locations for Area 9/10 were chosen to augment soil gas results from the Phase II investigation which found low to moderate concentrations of VOCs at the locations shown in Figure 3-4. Area 9/10 is the least characterized of the four source areas addressed in this SCOU, and it represents a composite of two formerly separate areas from the Phase II investigation. The former Area 9 is located west of 9th Street and the former Area 10 is located east of 9th Street.

Although a total of 146 proposed sample locations are shown in Figure 3-4, the actual number and position of the samples will depend on access and field conditions. The current map is based primarily on a recent aerial photograph (1988) in which it is difficult to distinguish consistently buildings from paved areas. Hence, the accuracy of some of the features shown in Figure 3-4 are queried pending field verification. For the purpose of cost development, it was assumed that queried areas consist of pavement only and that samples will be collected from areas containing both buildings and pavement. A contingency of 30 locations was used for cost development.

#### Area 11

The SCOU soil gas sample locations for Area 11 (Figure 3-5) were chosen to augment soil gas results from the Phase II investigation which found low concentrations of VOCs in the southwest corner. The low VOC concentrations detected during the Phase II soil gas survey likely resulted from masking effects produced by high concentrations of benzene, ethylbenzene, toluene, and xylenes (BETX). Both VOCs and BETX compounds will be quantified during the SCOU soil gas survey. A contingency of 10 locations was used for cost development

#### 3.6.2 GEOPROBE SOIL SAMPLES

Soil samples will be collected with a Geoprobe unit from 25 percent of the soil gas sampling locations to confirm the soil gas results and to help delineate the extent of soil contamination. Samples will be analyzed by the USEPA Contract Laboratory Program (CLP) for volatile organics in Areas 4, 7 and 11 and for volatile and semi-volatile organics in Area 9/10. Area 9/10 has no previous subsurface data available.

Sample locations will be selected to confirm hot spots and to better define areas where soil gas concentrations begin to decrease. Two soil samples from the vadose zone will be collected at each location and sent to the CLP for analysis. The first soil sample will be taken from the interval exhibiting large soil gas concentration, and the second sample will be collected at greater depth than the first where field headspace screening indicates little or no organic vapors. A PID or FID will be used for field screening measurements.

#### 3.6.3 SOIL BORINGS

Soil borings will be drilled in Areas 4, 7, 9/10, and 11 in areas where soil gas and for field headspace measurements indicate high VOC concentrations. The primary objectives of the deep soil borings are to determine whether DNAPL is present near the zones of highest contamination, and to provide detailed information about the stratigraphy. The borings will be sampled continuously with a split-barrel sampler and advanced until either a contaminated clay unit or bedrock is encountered. Drilling will be conducted using either



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hollow stem augers or mud rotary, depending on the site conditions. In Area 7, bedrock is expected to be approximately 80 feet below grade; bedrock is expected to be more than 100 feet deep in Areas 4, 9/10, and 11. Two borings will be drilled in Areas 4 and 7, three borings in 11, and six borings in Area 9/10 because relatively little is known about the subsurface conditions in this area. Boring depth is expected to be 80 feet in each area except in Area 11, where a 60 foot depth (approximately 30 feet below the water table) is anticipated because of the predominance of compounds that are less dense than water. If field screening indicates contamination at a depth of 60 feet at boring locations in Area 11 or at depths of 80 feet in Areas 4, 7 and 9/10, the borehole will be advanced to bedrock expected to be at a maximum depth of 120 feet.

Soil samples will be visually examined, screened for organic vapors with a PID or FID, and select samples will be physically tested to detect NAPL. The procedure for the visual detection of NAPL in soil is described in the Sampling and Analysis Plan (SAP). In addition, one soil sample from each boring in Areas 4, 7, and 11 will be sent to a CLP laboratory for chemical analysis of volatile organics. In Area 9/10, two soil samples from each boring will be submitted for analysis of RAS Volatile Organics and RAS Metals and Cyanide due to the lack of existing data. Samples selected will be those also selected for field NAPL testing or an interval with relatively high organic vapor readings. The sampling and analysis program and sampling rationale is provided in the SAP.

#### 3.6.4 RESIDENTIAL AIR SAMPLING

Residential air sampling will be conducted by the Illinois Department of Public Health (IDPH) in selected homes near Area 4 based on the results of the soil gas sampling. CDM will review the data generated and incorporate the results as appropriate in the Technical Memorandum.

#### 3.7 AREA 7 SURFACE WATER AND CREEK SEDIMENT SAMPLING

Surface water and sediment from the creek that runs along the northern boundary of Area 7 will be sampled to characterize this portion of the site. One water sample will be collected at

sediment samples will be collected at the confluence point, and one sample each from upstream and downstream of this point. The surface water and sediment samples from the creek will be sent to a CLP laboratory for analysis of volatile organic compounds, semi-volatile organic compounds, and pesticides/PCBs.

### 3.8 SURFACE SOIL SAMPLING

A maximum of twenty surface soil samples will be collected during the SCOU. Locations will be determined in the field based on the results of the soil gas sampling. Residential and park areas will be the primary areas targeted for sampling. It is expected that four samples will be collected in Area 7, north of the playground and south of the creek; four samples will be collected in Area 9/10 in the residential area north of Twenty-Third Avenue and two samples from Area 4, east of the Swebco facility. No samples are currently proposed for Area 11. Samples will be analyzed for full RAS Target Compound List Organics and RAS Metals and Cyanide.

### 3.9 STORAGE AND DISPOSAL OF SCOU-GENERATED WASTES

The drilling and sampling activities for the SCOU investigation are expected to generate liquid and solid wastes. Solid wastes, including cuttings, personal protective equipment, and other incidental materials will be sealed in 55-gallon drums and placed in a central, secure drum storage area. IEPA will be responsible for selecting the location of an securing access for the drum storage area as well as for ensuring that the area is secured prior to drum removal.

CDM's drilling subcontractor will be responsible for the proper sampling and disposal of the drums on a regular basis. CDM will provide oversight during drum removal and IEPA will be responsible for all manifesting of the drums.

### 3.10 DECONTAMINATION PROCEDURE

Decontamination procedures for personnel are fully described in the Health and Safety Plan. Equipment decontamination procedures are briefly summarized in this section.

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Decontamination procedures for personnel are fully described in the Health and Safety Plan. Equipment decontamination procedures are briefly summarized in this section.

Decontamination of large equipment (drill rigs and associated equipment) will be performed at a decontamination pad lined with impermeable sheeting which drains to a shallow sump. Decontamination will consist of high-pressure steam cleaning and scrubbing, as necessary. Decontaminated drilling equipment (i. e., augers, rods) will be stored on plastic sheeting and kept from coming in contact with the ground surface and other potentially contaminated materials.

Sampling equipment, including split-spoon samplers, reusable spatulas, and other implements which may come in contact with the samples will be decontaminated by scrubbing with a dilute trisodium phosphate solution, followed by a tap water rinse, and a final deionized water rinse. Decontaminated sampling equipment will be placed on or wrapped in clean aluminum foil prior to next use. All field equipment will be thoroughly decontaminated prior to initiation of and at completion of SCOU field activities.

### 3.11 TECHNICAL MEMORANDUM

Following the receipt of analytical data, CDM will prepare a Draft Data Interpretation Technical Memorandum for the Source Control Operable Unit that will be used as a basis for an RI report to be produced later. This document will be for Agency use only and shall not be made available for public distribution. The report will present the data in tabular and graphic format; discuss source area characteristics such as vertical and horizontal extent, waste characteristics, and potential DNAPL; and present conclusions based on the data collected. Site maps will be generated showing sample locations, containment concentrations and estimates of source area dimensions. The general format for the report is shown in Table 3-2. The budget for this task assumes one draft will be prepared.

TABLE 3-2

REPORT FORMAT FOR THE TECHNICAL MEMORANDUM

EXECUTIVE SUMMARY

1.0 STUDY AREA INVESTIGATION

*Brief description of field activities associated with site characterization*

2.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

2.1 Includes results of field activities to determine physical characteristics

2.1.1 Geology

2.1.2 Soils

2.1.3 Surface Water and Sediment

3.0 NATURE AND EXTENT OF CONTAMINATION

3.1 Presents the results of site characterization, including both natural chemical components and contaminants in the following media:

3.1.1 Soils and Vadose Zone

3.1.2 Air

3.1.3 Surface Water and Sediments

4.0 CONCLUSIONS

### 3.12 CDM QUALITY ASSURANCE/QUALITY CONTROL MANAGEMENT

An onsite Field Manager (FM) will be responsible for overseeing the completion of Operable Unit (OU) field activities in a timely and quality manner. The FM will review the daily work assignments of project team members and will interject technical and managerial guidance as needed to increase the quality and minimize the cost of the work products. The FM is also responsible for satisfying the specific requirements of the QAPP during OU activities. The FM will report directly to the Project Manager (PM).

The Project Manager will coordinate with the Quality Assurance Manager (QAM) for the review of the Technical Memorandum. A Technical Review Committee (TRC), made up of experts in the areas of risk assessment, hydrogeology, contaminant transport and remediation, will work with the PM and QAM to the document for technical and management accuracy and completeness before it is released to the IEPA.

### 3.13 PROJECT MANAGEMENT AND ADMINISTRATION

It is CDM's corporate policy to assign a Client Officer to all projects regardless of size, type or complexity of the assignment. The Client Officer is a senior level manager whose responsibility is to achieve successful completion of the project as well as client satisfaction. While the Project Manager, who will report to the Client Officer, executes the day-to-day management and administrative functions, the Client Officer will be actively involved in the processing and making of all strategic project decisions. In support of the Project Manager, the Client Officer will ensure that the firm's technical specialists and general resources are made available for the project.

Responsibilities of the CDM Project Manager throughout the SCOU will include the following:

- Coordinate with the IEPA and USEPA to plan the scoping and scheduling of the SCOU:

- Selecting, coordinating and scheduling staff for task assignments;
- Manage the timely completion of all scheduled activities;
- Controlling budgets;
- Update IEPA and USEPA on all project schedules;
- Attend project review meetings and other meetings necessary for the normal progress of work;
- Monitoring Subcontractors;
- Maintain project quality assurance and quality control;
- Prepare monthly progress reports of technical, schedule and cost status; and
- Evaluate documentation and graphics for compliance with IEPA and USEPA standards.

The CDM Project Manager will prepare monthly progress reports for submission to the IEPA Project Manager, for the duration of project activities. Courtesy copies of these reports will also be copied to the USEPA Remedial Project Manager. These reports will describe the technical progress of the project and will discuss the following items:

- Description of site activity;
- Status of work at the site;
- Percentage of completion and schedule status;
- Problems encountered during the reporting period;

- Actions taken to rectify problems;
- Activities planned for the following month;
- Changes in personnel; and
- Project cost status.

Monthly progress reports will list target and actual completion dates for each task activity, including project completion, and will explain any deviations which have occurred or are anticipated.

#### 3.14 SAMPLE MANAGEMENT

CDM will work with USEPA Region V Regional Sample Control Coordinator (RSCC) to schedule samples for the CLP, access the appropriate sample paperwork and chain of custody documentation and track samples through CLP analysis and validation by USEPA. CDM will enter the validated CLP data into the database already in place for the project. This database will be used to manipulate the data for interpretation and report preparation.

#### 4.0 PROJECT STAFFING

CDM has selected members of the project team to best match the skills of the individuals to the needs of the project. Personnel assigned to the project and their areas of responsibility are given in the QAPP.



## 5.0 PROJECT SCHEDULE

The schedule for conducting the Southeast Rockford Source Control Operable Unit (SCOU) is shown in Figure 5-1. The schedule illustrates the chronological coordination of tasks from the date of project plan approval. The budget for the SCOU is given in Table 5-1.

**FIGURE 5-1  
SOUTHEAST ROCKFORD SOURCE CONTROL OPERABLE UNIT SCHEDULE**

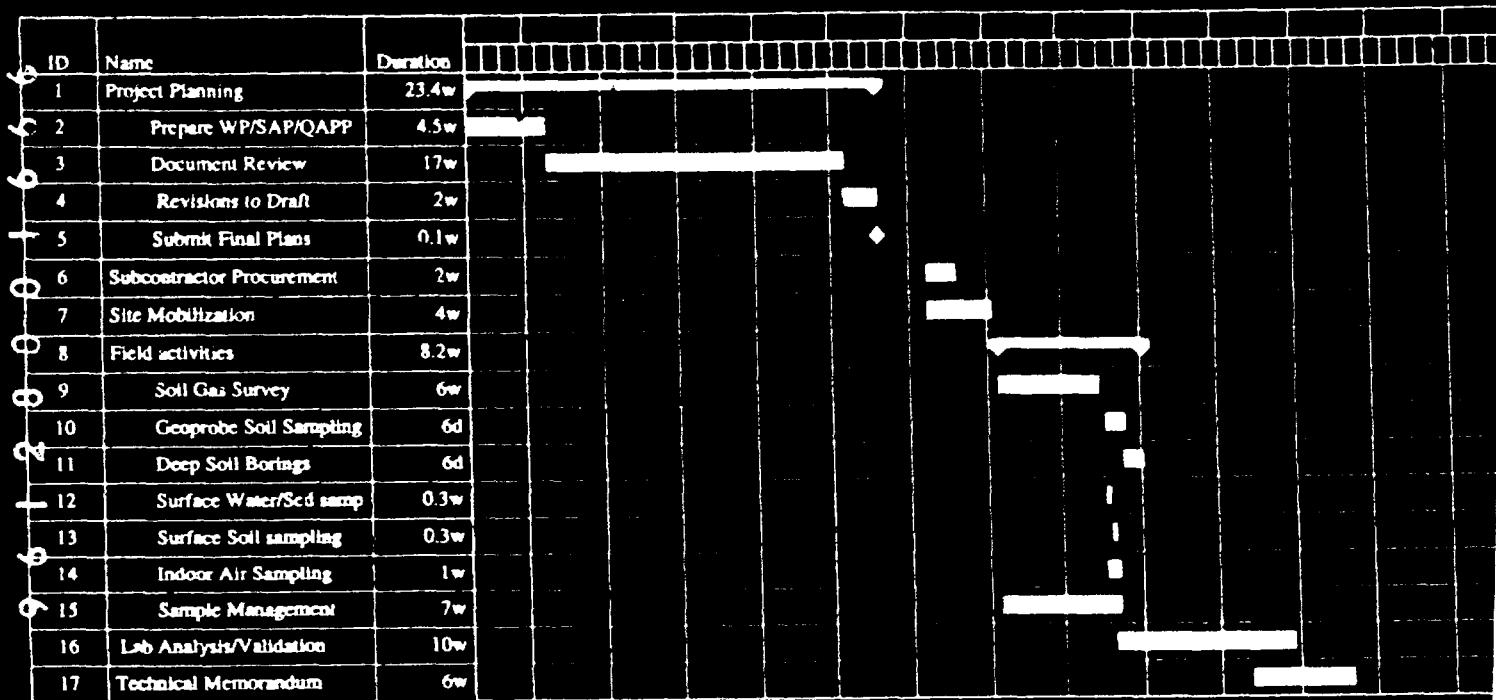
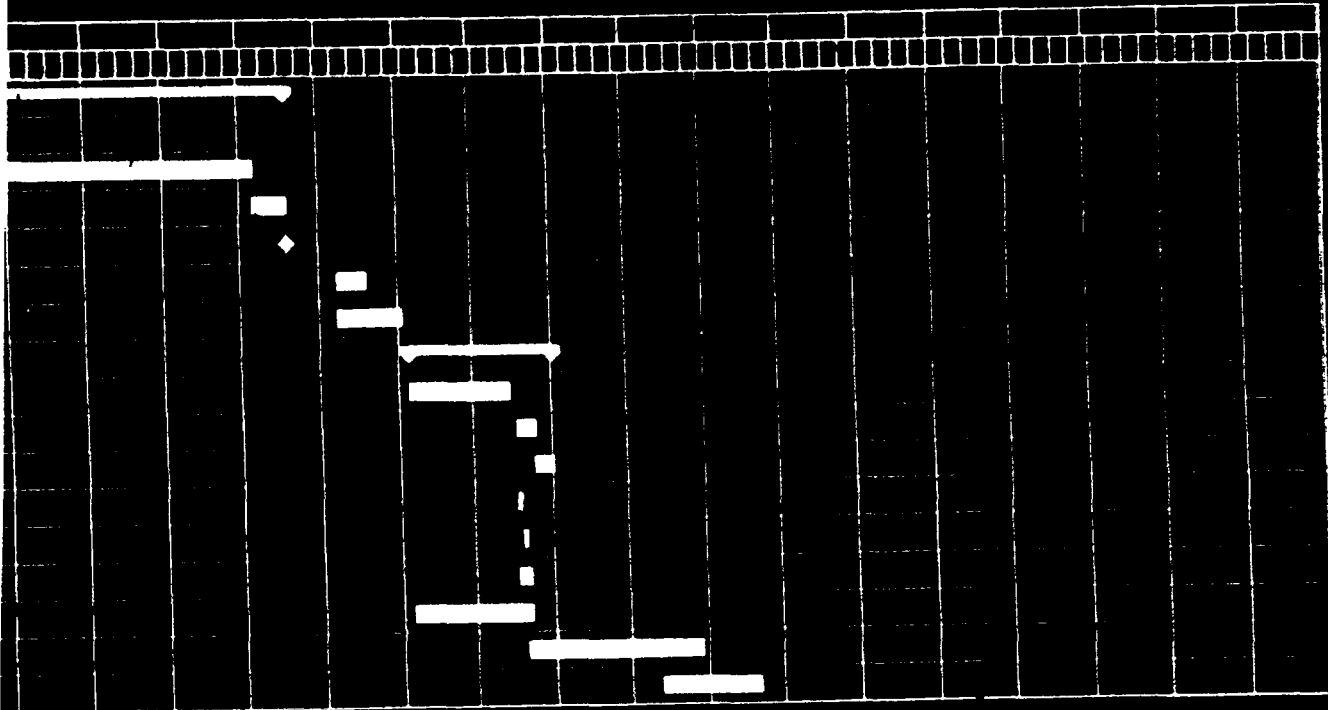


FIGURE 5-1  
 EAST ROCKFORD SOURCE CONTROL OPERABLE UNIT SCHEDULE



Task Milestone

SCOU BUDGET BACKUP  
FOR  
FIELD INVESTIGATION LABOR HOURS

3.0 Site Mobilization / Utility Clearance

1 person to organize and manage mobilization - 4 days x 10 hours per day	40
1 person to participate in joint utility meet, coordination with local industries in Areas 9/10, and trailer setup - 12 days x 10 hours per day	120
	<hr/> 160

4.0 Soil Gas Survey

1 person to locate and stake soil gas points (including private property, Areas 9/10 and 11) - 5 days x 10 hours per day	50
1 person for 25 days x 10 hours per day	250
This assumes 12 soil gas points per day and total of 298 points	
Equipment and Supply Management	10
Technical Oversight	<hr/> 10
	320

5.0 Geoprobe Soil Sampling

1 person for 6 days x 12 hours per day	72
This assumes 12 samples points per day and total of 74 points	
1 person to manage and execute CLP paperwork for soil samples - 6 days x 12 hours per day	72
Equipment and Supply Management	8
Technical Oversight	<hr/> 8
	160

6.0 Deep Soil Borings

1 person for 8 days x 12 hours per day	96
1 person to manage and execute CLP paperwork for soil samples - 8 days x 12 hours per day	96
Equipment and Supply Management	8
Technical Oversight	<hr/> 8
	208

SCOU BUDGET BACKUP  
FOR  
FIELD INVESTIGATION LABOR HOURS

7.0 Surface Water and Creek Sediment Sampling

2 people for 1 day x 9 hours per day 18

Technical Oversight  $\frac{2}{20}$

8.0 Surface Soil Sampling

2 people for 1 day x 9 hours per day 18

Technical Oversight  $\frac{2}{20}$

**SCOU BUDGET BACKUP  
FOR  
FIELD INVESTIGATION  
OTHER DIRECT COSTS**

**3.0 Site Mobilization / Utility Clearance**

Hotel - 1 person for 8 days x \$45 per day	\$360
Meals - 1 person for 8 days x \$24 per day	\$192
Transportation - Personal Vehicle - 800 miles x \$.30 per mile	\$240
Photocopying - 100 pages x \$.10 per page	\$10
Fax - 20 pages x \$1.50 per page	\$30
Express Mail - 10 coolers x \$80 per plus 5 packages x \$ 20 per package	\$900
Telephone	\$60
Computer - 24 hours x \$6 per hour	\$144

***Equipment:***

Field Trailer (12' x 60') -	Set Up	\$160
	Freight - \$350 each way	\$700
	Rent - 2 months x \$235 per month	\$470
	Plan Table	\$40
	Trailer Chairs - 5 Chairs x \$15 / chair x 2 Mo.	\$150
	Window Blinds - 10 Windows x \$10 each	\$100
	Dismantle Fee	\$95
	Cleaning	\$95

Utilities -	Electric Service Hookup	\$715
	Monthly Electric - 2 months x \$30 per month	\$60
	Phone Service Hookup	\$275
	Monthly Phone - 2 months x \$45 per month	\$90
	Long Distance - 2 months x \$75 per month	\$150

**Personal Protective Gear**

Steel Toe Boots- 2 pr x 40 days x \$3/day	\$240
Hard Hats--2 hats x 40 days x \$0.5/day	\$40
Safety Glasses- 2 pair x 40 days x\$0.5/day	\$40
Rain Suits--2 suits x 20 days x \$8/day	\$320

Portable Rest Room - 2 months x \$125 per month (bi-weekly service)	\$250
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**SCOU BUDGET BACKUP  
FOR  
FIELD INVESTIGATION  
OTHER DIRECT COSTS**

Fax Rental - 2 months x \$175 per month	\$350
Refrigerator Rental - 2 months x \$50 per month	\$100
Decon Sprayer - 2 units x \$35 per month x 2 months	\$140
Fire Extinguisher - 2 months x \$10 per month	\$20
First Aid Kit - 2 kits x \$8 per kit x 2 months	\$32

<b>Mobilization Equipment Total</b>	<b>\$4,632</b>
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***Supplies:***

Alconox - 2 boxes x \$13 per box	\$26
Aluminum Foil - 10 Rolls x \$1 per roll	\$10
Distilled Water - 50 gallons x \$4 per gallon	\$200
Note: One bottle contains approximately one half gallon	
Eye Wash Bottles - 3 bottles x \$5 per bottle	\$15
Stainless Steel Sampling Utensils - 10 scoops x \$5 per scoop	\$50
Stainless Steel Tray - 2 x \$10 per tray	\$20
Log books - 5 logs x \$11 per log	\$55
Latex Gloves - 15 boxes x \$12 per box	\$180
Rubber Boot Covers - 25 pairs x \$5 per pair	\$125
Markers - 5 x \$1.40 each	\$7
Strapping Tape - 10 rolls x \$3.50 per roll	\$35
Clear Mailing Tape - 5 Rolls x \$4.50 per roll	\$23
Paper Towels - 25 rolls x \$1.00 per roll	\$25

**SCOU BUDGET BACKUP  
FOR  
FIELD INVESTIGATION  
OTHER DIRECT COSTS**

Garbage Bags - 5 boxes x \$10.00 per box	\$50
Vermiculite - (6 cubic foot bag) - 20 bags x \$7 per bag	\$140
<b>Mobilization Supplies Total</b>	<b>\$961</b>
<b>Site Mobilization/Utility Clearance Grand Total</b>	<b>\$7,529</b>

**4.0 Soil Gas Survey**

Hotel - 1 person for 5 days x \$45 per day	\$225
Hotel - 1 person for 25 days x \$45 per day	\$1,125
Meals - 1 person for 5 days x \$24 per day	\$120
Meals - 1 person for 25 days x \$24 per day	\$600
Supplies - Flagging Tape-5 rolls x 2/roll + 15 bundles stakes x \$5/bundle + 10 cans spray paint x \$5/can	\$135
Transportation - Rental Van - 1 month x \$1000 per month	\$1,000
Transportation - Personal Vehicle - 500 miles x \$.30 per mile	<u>\$150</u>
<b>Soil Gas Survey Total</b>	<b>\$3,355</b>

**5.0 Geoprobe Soil Sampling**

Hotel - 2 people for 6 days x \$45 per day	\$540
Meals - 2 people for 6 days x \$24 per day	\$288
Supplies - 2 Log books x \$11 +2 roll visqueen x \$42 + 20 boxes ziploc bags x \$3 + 60 bags ice x \$1/bag	\$226
Transportation - Rental Van - 2 weeks x \$250 per week	\$500
Transportation - Personal Vehicle - 450 miles x \$.30 per mile	<u>\$135</u>
<b>Geoprobe Soil Sampling Total</b>	<b>\$1,689</b>

**6.0 Deep Soil Borings**

Hotel - 2 people for 8 days x \$45 per day	\$720
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SCOU BUDGET BACKUP  
FOR  
FIELD INVESTIGATION  
OTHER DIRECT COSTS

Meals - 2 people for 8 days x \$24 per day	\$384
Supplies - 2 Log books x \$11 + 2 roll visqueen x \$42 + 10 boxes ziploc bags x \$3 + 30 bags ice x \$1/bag	\$166
Transportation - Rental Van - 2 weeks x \$250 per week	\$500
Transportation - Personal Vehicle - 450 miles x \$.30 per mile	<u>\$135</u>
<b>Deep Soil Borings Total</b>	<b>\$1,905</b>

7.0 **Surface Water and Creek Sediment Sampling**

Supplies - 1 Log book x \$11 + 1 roll visqueen x \$42 + 2 boxes ziploc bags x \$3 + 10 bags ice x \$1/bag	\$69
Transportation - Rental Sedan - 1 day x \$50 per day	\$50
Transportation - Personal Vehicle - 200 miles x \$.30 per mile	<u>\$60</u>
<b>Surface Water and Creek Sediment Sampling Total</b>	<b>\$179</b>

8.0 **Surface Soil Sampling**

Supplies - 1 Log book x \$11 + 1 roll visqueen x \$42 + 2 boxes ziploc bags x \$3 + 10 bags ice x \$1/bag	\$69
Transportation - Rental Sedan - 1 day x \$50 per day	\$50
Transportation - Personal Vehicle - 200 miles x \$.30 per mile	<u>\$60</u>
<b>Surface Soil Sampling Total</b>	<b>\$179</b>

Task Description	Professional 5		Professional 4		Professional 3	
	\$51.50 / Hour		\$39.14 / Hour		\$28.84 / Hour	
	Hours	\$	Hours	\$	Hours	\$
1.0 Prepare Draft Work Plan / SAP / QAPP	0	\$0	48	\$1,879	100	\$2,884
1.0 Prepare Final Work Plan / SAP / QAPP	0	\$0	24	\$939	0	\$0
2.0 Subcontractor Procurement	0	\$0	0	\$0	16	\$461
3.0 Site Mobilization / Utility Clearance	0	\$0	0	\$0	0	\$0
4.0 Soil Gas Survey	0	\$0	10	\$391	0	\$0
5.0 Geoprobe Soil Sampling	0	\$0	8	\$313	0	\$0
6.0 Deep Soil Borings & IDW Disposal	0	\$0	8	\$313	0	\$0
7.0 Surface Water and Creek Sediment Sampling	0	\$0	2	\$78	0	\$0
8.0 Surface Soil Sampling	0	\$0	2	\$78	0	\$0
9.0 Indoor Air Sampling	0	\$0	0	\$0	0	\$0
10.0 Sample Management	0	\$0	0	\$0	40	\$1,154
11.0 Technical Memorandum	0	\$0	40	\$1,566	160	\$4,614
12/13 Project Management and Administration	16	\$824	160	\$6,262	0	\$0
<b>TOTALS</b>	<b>16</b>	<b>\$824</b>	<b>302</b>	<b>\$11,820</b>	<b>316</b>	<b>\$9,054</b>

Professional 3		Professional 2		Professional 1		Technician 2		Technician 1		Clerical				
\$28.84 / Hour		\$22.66 / Hour		\$17.51 / Hour		\$15.04 / Hour		\$11.33 / Hour		\$13.18 / Hour				
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hour		
79	100	\$2,884	230	\$5,212	40	\$700	60	\$902	0	\$0	64	\$844	54	
99	0	\$0	24	\$544	16	\$280	16	\$241	0	\$0	20	\$264	10	
\$0	16	\$461	24	\$544	24	\$420	8	\$120	0	\$0	4	\$53		
\$0	0	\$0	0	\$0	80	\$1,401	80	\$1,203	0	\$0	0	\$0	1	
91	0	\$0	155	\$3,512	155	\$2,714	0	\$0	0	\$0	0	\$0	3	
113	0	\$0	76	\$1,722	76	\$1,331	0	\$0	0	\$0	0	\$0	1	
113	0	\$0	96	\$2,175	104	\$1,821	0	\$0	0	\$0	0	\$0	2	
178	0	\$0	9	\$204	9	\$158	0	\$0	0	\$0	0	\$0		
178	0	\$0	9	\$204	9	\$158	0	\$0	0	\$0	0	\$0		
\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	40	\$527		
\$0	40	\$1,154	50	\$1,133	50	\$876	0	\$0	0	\$0	60	\$791		
566	160	\$4,614	160	\$3,626	120	\$2,101	40	\$602	0	\$0	60	\$791		
262	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	60	\$791		
820		316	\$9,113	833	\$18,876	683	\$11,959	204	\$3,068	0	\$0	248	\$3,269	2

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Technician 2		Technician 1		Clerical		Total Labor	
\$15.04 / Hour		\$11.33 / Hour		\$13.18 / Hour			
Hours	\$	Hours	\$	Hours	\$	Hours	\$
60	\$902	0	\$0	64	\$844	542	\$12,421
16	\$241	0	\$0	20	\$264	100	\$2,268
8	\$120	0	\$0	4	\$53	76	\$1,599
80	\$1,203	0	\$0	0	\$0	160	\$2,604
0	\$0	0	\$0	0	\$0	320	\$6,618
0	\$0	0	\$0	0	\$0	160	\$3,366
0	\$0	0	\$0	0	\$0	208	\$4,310
0	\$0	0	\$0	0	\$0	20	\$440
0	\$0	0	\$0	0	\$0	20	\$440
0	\$0	0	\$0	0	\$0	0	\$0
0	\$0	0	\$0	0	\$0	0	\$0
0	\$0	0	\$0	40	\$527	180	\$3,689
40	\$602	0	\$0	60	\$791	580	\$13,299
0	\$0	0	\$0	60	\$791	236	\$7,877
204	\$3,068	0	\$0	248	\$3,269	2602	\$58,930

Table 5-1  
Southeast Rockford  
Source Control Operable Unit  
Proposed Budget

Task Description	Total Labor	Direct Labor	Indirect Labor	Total Labor	OD
	Hours	\$	\$	\$	\$
1.0 Prepare Draft Work Plan / SAP / QAPP	542	\$12,421	\$22,097	\$34,518	\$
1.0 Prepare Final Work Plan / SAP / QAPP	100	\$2,268	\$4,034	\$6,302	\$
2.0 Subcontractor Procurement	76	\$1,599	\$2,844	\$4,442	
3.0 Site Mobilization / Utility Clearance	160	\$2,604	\$4,633	\$7,237	\$
4.0 Soil Gas Survey	320	\$6,618	\$11,773	\$18,391	\$
5.0 Geoprobe Soil Sampling	160	\$3,366	\$5,988	\$9,354	\$
6.0 Deep Soil Borings & IDW Disposal	208	\$4,310	\$7,667	\$11,976	\$
7.0 Surface Water and Creek Sediment Sampling	20	\$440	\$782	\$1,222	
8.0 Surface Soil Sampling	20	\$440	\$782	\$1,222	
9.0 Indoor Air Sampling	0	\$0	\$0	\$0	
10.0 Sample Management	180	\$3,683	\$6,563	\$10,253	
11.0 Technical Memorandum	580	\$13,299	\$23,659	\$36,958	
12/13 Project Management and Administration	236	\$7,877	\$14,014	\$21,891	
<b>TOTALS</b>	<b>2602</b>	<b>\$53,930</b>	<b>\$104,836</b>	<b>\$163,765</b>	<b>\$</b>

	Total Labor Hours	Direct Labor \$	Indirect Labor \$	Total Labor \$	ODCs \$	Subcontractor Costs \$	Total Costs \$
	542	\$12,421	\$22,097	\$34,518	\$1,755	\$0	\$36,273
	100	\$2,268	\$4,034	\$6,302	\$1,915	\$0	\$8,217
	76	\$1,599	\$2,844	\$4,442	\$655	\$0	\$5,097
	160	\$2,604	\$4,633	\$7,237	\$7,529	\$0	\$14,766
	320	\$6,618	\$11,773	\$18,391	\$3,355	\$72,000	\$93,746
	160	\$3,366	\$5,988	\$9,354	\$1,689	\$10,000	\$21,043
	208	\$4,310	\$7,667	\$11,976	\$1,905	\$56,000	\$69,881
pling	20	\$440	\$782	\$1,222	\$179	\$0	\$1,401
	20	\$440	\$782	\$1,222	\$179	\$0	\$1,401
	0	\$0	\$0	\$0	\$0	\$0	\$0
	180	\$3,689	\$6,563	\$10,253	\$800	\$0	\$11,053
	580	\$13,299	\$23,659	\$36,958	\$3,645	\$0	\$40,603
on	236	\$7,877	\$14,014	\$21,891	\$0	\$0	\$21,891
	2602	\$58,930	\$104,836	\$163,765	\$23,606	\$138,000	\$325,371

	+
Fee	\$25,837
	=
Final Total	\$351,208

Source Co